BCGuidelines.ca
Guidelines & Protocols Advisory Committee

# Chronic Obstructive Pulmonary Disease: Diagnosis and Management in Primary Care

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## Scope

This guideline provides recommendations for adults with chronic obstructive pulmonary disease (COPD) in primary care.

## Key Recommendations

### Diagnosis

- Confirm all presumptive, symptom-based diagnoses of COPD one time with spirometry postbronchodilator ratio of $FEV_1/FVC < 0.7$.
- Understand asthma and COPD are distinct diagnoses and may exist in the same patient. **[NEW, 2024]**
- CT is not needed to diagnose COPD but may be useful for screening lung cancer. **[NEW, 2024]**

### Management

- Encourage all patients who smoke to quit or decrease use as treatment for COPD.
- Manage COPD early in order to slow disease progression. **[NEW, 2024]**
- Investigate and manage possible comorbidities to optimize outcomes.
- Refer patients, especially those with moderate to severe COPD, to a respiratory therapist for education and/or pulmonary rehabilitation.
- Provide appropriate immunizations to reduce the risk of exacerbation and mortality. **[NEW, 2024]**
- Consider checking baseline blood eosinophil count prior to commencing inhaled corticosteroid (ICS). **[NEW, 2024]**

### Environmental Impact and Climate Change

- Consider medication options with lower environmental impact. Metered-dose inhalers (MDIs) contribute disproportionately to climate change, which in turn can affect COPD. **[NEW, 2024]**
- Prepare for climate events such as wildfire and extreme heat, which can exacerbate COPD symptoms. **[NEW, 2024]**

### Education

- Prescribe appropriate controller and rescue medications along with a COPD action plan.
- Evaluate the patient's inhaler adherence and technique regularly.

## Definition

Chronic Obstructive Pulmonary Disease (COPD) is a progressive chronic lung disease, typically caused by emphysema (destruction of alveoli) or chronic bronchitis (inflammation of bronchioles), and is characterized by dyspnea, cough, and sputum production.[1] As of 2020/21, more than 5% of those over age 35 have been diagnosed with COPD in BC.[2]

Symptoms are exacerbated through exposure to viruses, bacteria, and noxious particles or gasses. Patients with acute exacerbations have a notably higher mortality rate than those with stable COPD.[3]

## Risk Factors

### Environment

In Canada, 80 to 90% of COPD is caused by smoking.[4] Other important risk factors include: occupational exposure to dusts (e.g., coal, grain, wood) or fumes (e.g., natural gas, biofuel), repeated respiratory infections during childhood, history of cooking over an open flame, and a history of exposure to smoke (e.g., wildfires, burn piles, industrialized urban areas) or second-hand smoke.[4] The Air Quality Health Index (AQHI) tracks the quality of outdoor air.

### Genetics

A genetic deficiency of alpha-1-antitrypsin (A1AT), an anti-protease which protects the lung tissue from damage, is associated with an increased risk of COPD.[5] Testing for A1AT deficiency is expensive, low yield, often duplicated and may not alter management in a meaningful way. Therefore, refer patients with high pre-test probability to a specialist.

## Diagnosis

Diagnosis is based on a combination of medical history and physical examination and is confirmed through documentation of airflow limitation using spirometry. **Confirmation with spirometry is important because COPD is over-diagnosed (59%) when patients are assessed by medical history alone.** However, spirometry may be difficult to access.[6] If clinically indicated, consider initiating empiric therapy for COPD while awaiting spirometry.

Consider a COPD diagnosis for adults ≥ 40 years of age who have:

| Respiratory symptoms, including: | | One of the following: |
|---|---|---|
| • dyspnea (progressive, persistent, and worse with exercise)<br>• chronic cough<br>• increased sputum production | **AND** | • history of exposure to cigarette smoke<br>• history of environmental/occupational exposure to smoke, dust, or gas/fumes<br>• frequent respiratory infections<br>• family history of COPD. |

Common differential diagnoses for COPD include asthma (see BCGuidelines.ca: Asthma - Diagnosis, Education, and Management), heart failure (see BCGuidelines.ca: Heart Failure - Diagnosis and Management), restrictive and/or interstitial lung diseases, obesity, and deconditioning.[1]

Key differences between asthma and COPD are:[1]

- COPD is diagnosed by post-bronchodilator ratio of Forced Expiratory Volume ($FEV_1$)/ Forced Vital Capacity (FVC) < 0.7
- Asthma symptoms can remain stable or improve on appropriate therapy, while COPD is a progressive condition.
- COPD is typically diagnosed after age 40.

Note that fixed airflow obstruction may be present in **both** COPD and uncontrolled asthma (see BCGuidelines.ca: Asthma - Diagnosis, Education, and Management).

Previous guidelines have referenced Asthma and COPD Overlap Syndrome (ACOS). Instead of diagnosing ACOS, it is now recognized that Asthma and COPD may coexist in the same patient.[1]

### Spirometry

Although provincial access may be challenging, it is important to send **all** patients suspected of having COPD for one-time confirmation of the diagnosis by spirometry. In the case of severe symptoms, referral to a specialist should happen with or without spirometry.

Borderline results may indicate need to consider alternate diagnosis. Consider repeat testing based on changes in clinical presentation.

For spirometry to qualify for coverage under the Medical Services Plan, testing must be performed at an accredited facility. However, evidence suggests that with correct training and equipment, spirometry performed in an office is comparable to testing performed in a pulmonary function laboratory.[7]

### Chest X-ray and CT Scan

Neither chest x-ray nor CT is required for diagnosing COPD.[1] CT may be helpful to screen for lung cancer in appropriate patients.

The evidence supporting lung cancer screening with low dose CT exclusively shows benefit for those between age 55-74, with at least a 30-pack year history of smoking *and* smoking within the last 15 years.[8] Encourage selected patients to call the Lung Screening Program (1-877-717-5864) to complete a risk assessment over the phone to confirm their screening eligibility for low dose CT.[9,10]

### Assessment of COPD Severity

Once the diagnosis is confirmed by spirometry, determine the level of COPD severity with a tool such as the modified Medical Research Council (mMRC) Dyspnea Scale or the COPD Assessment Test (CAT). These self-administered tools, which can be completed pre-appointment, aid in patient selection, treatment management, and ongoing monitoring.[1] See Appendix A: COPD Severity Assessment Scales, for more information.

## Management

The therapeutic goals of COPD management include:[1]

- Decrease mortality
- Decrease complications
- Decrease exacerbations
- Slow or prevent progression
- Increase exercise tolerance
- Increase quality of life

### Non-Pharmacological Management

Non-pharmacological therapy is complementary and part of a comprehensive approach to managing COPD.

All patients who smoke and have COPD should be encouraged to quit, as treatment for COPD. Please refer to BCGuidelines.ca: Tobacco Use Disorder.

Smoking Cessation resources include:

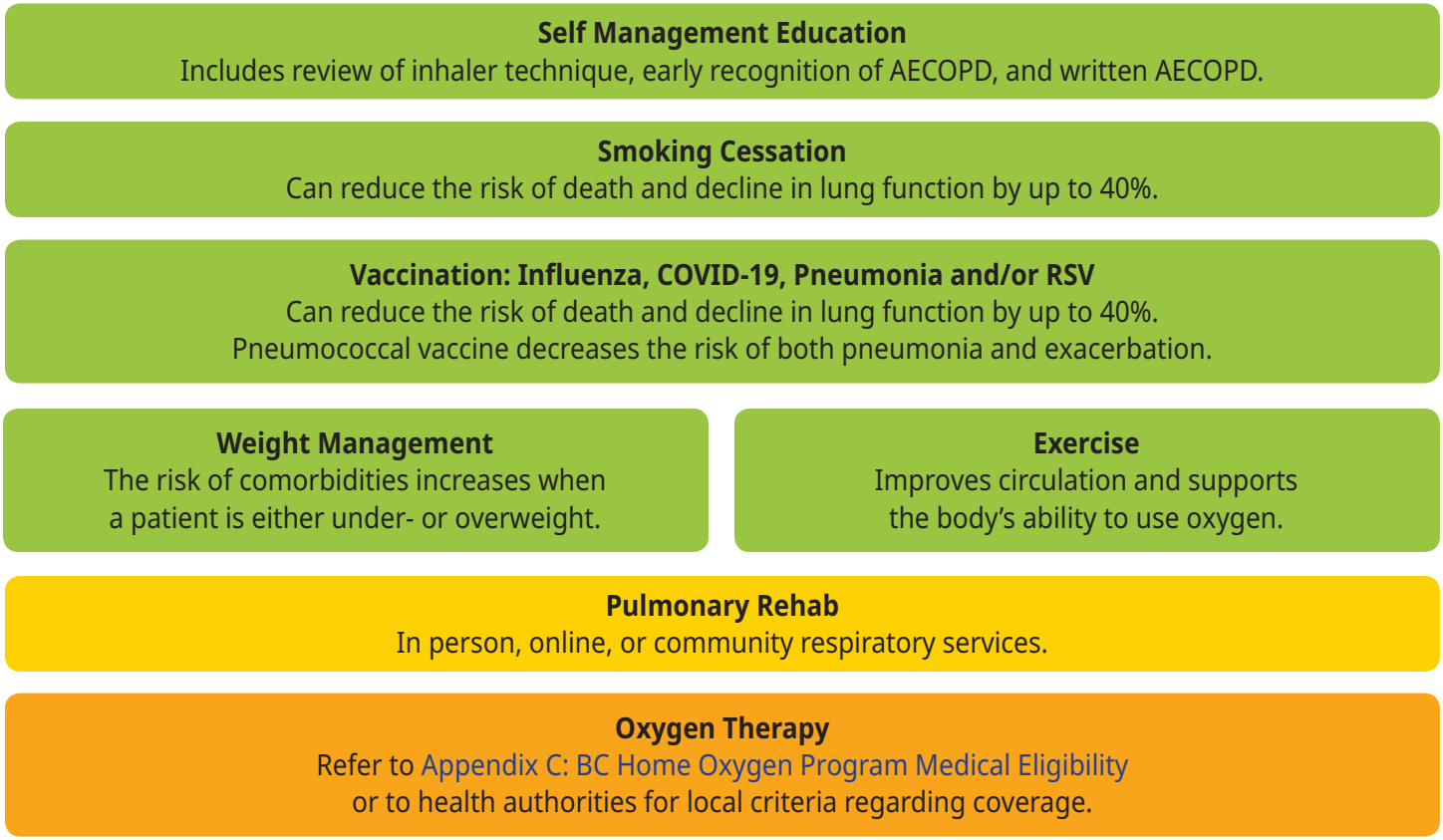
- QuitNow: quitnow.ca or 1-877-455-2233
- BC Smoking Cessation Program

Provide appropriate immunizations to reduce the risk of exacerbation and mortality[11] (i.e., influenza, COVID-19, RSV, and pneumococcal) (see BC CDC's Vaccines in BC and National Advisory Committee on Immunization's (NACI) recommendations).

Weight management, and exercise are recommended for all patients with COPD (See Patient, Family and Caregiver Resources).

Refer patients with moderate to severe COPD to pulmonary rehabilitation (See PathwaysBC).

**Figure 1. Building Blocks of Non-pharmacological Care**

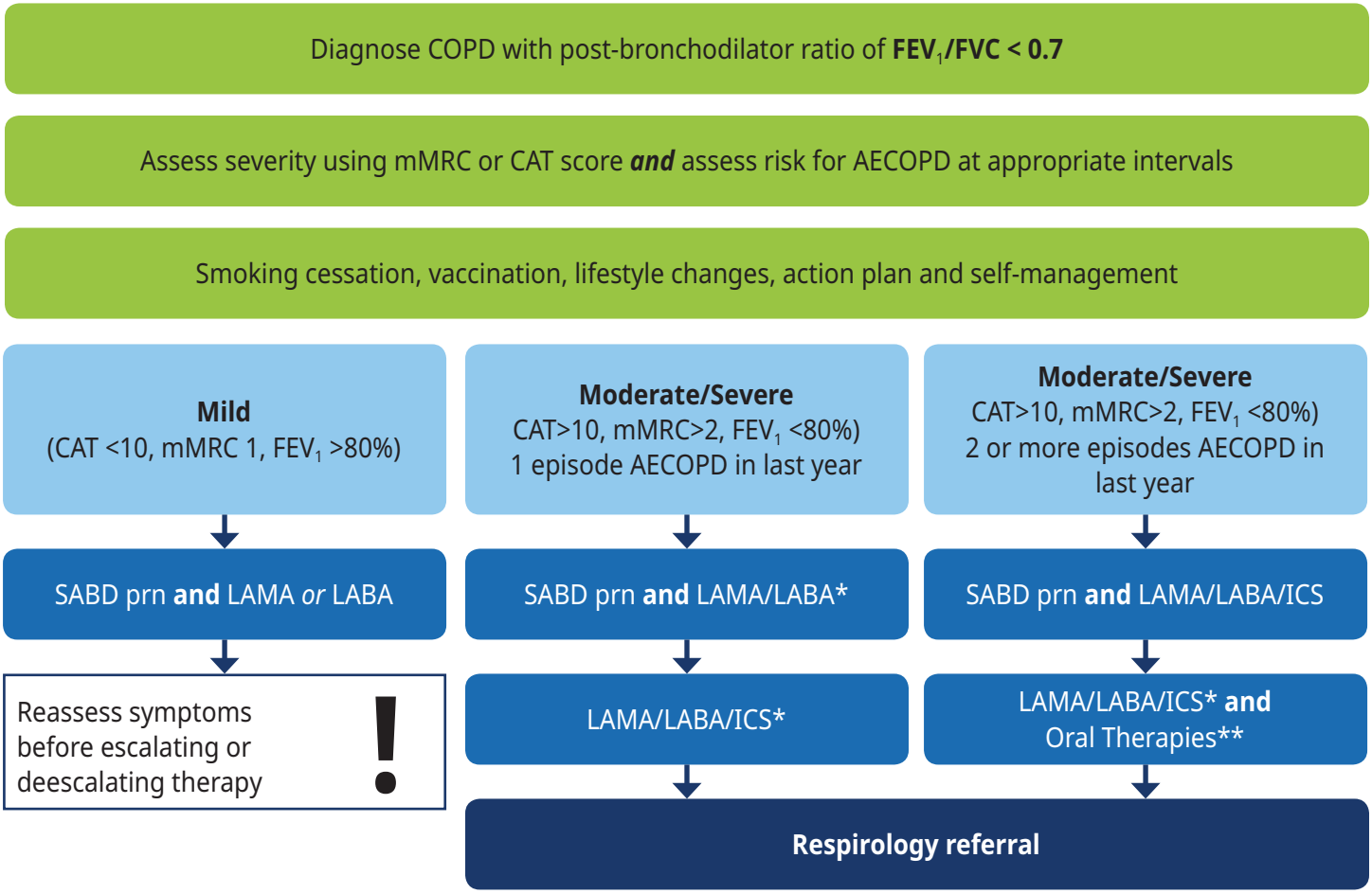



## Pharmacological Management

When prescribing medication for patients with COPD:

- Choose medications based on severity.
- Ensure that drug classes are not duplicated.
- Evaluate the patient's adherence and inhaler technique regularly, as **up to 50% of patients use their device incorrectly**.[12,13] Ask pharmacist to demonstrate.
- Prescribe a spacer for metered dose inhalers. Spacer devices (valved holding chamber) must be bought separately; however, spacers make it easier for a patient to use their MDI and they distribute medication to the lungs more proficiently, thereby increasing the effectiveness of medication.
- Consider the patient's cognitive and physical abilities, ease of device use, convenience, cost, and environmental implications regarding inhaler choices.[14]
- Individualize therapy at all times. For patients who could benefit from enhanced adherence and reduced inhaler technique errors, it is worth considering a single inhaler containing multiple medications instead of using multiple inhalers with a single medication in each.

**Figure 2: COPD Diagnosis and Management**




* Special Authority requires a minimum six-month trial prior to escalation unless prescription is provided by a respirologist or allergist with a collaborative prescribing agreement.
** Oral therapies require careful consideration and are ideally initiated by a specialist.

**Abbreviations: AECOPD** - acute exacerbation of chronic obstructive pulmonary disease, **CAT** - COPD Assessment Test, **FEV**$_1$ - Forced Expiratory Volume, **ICS** - inhaled corticosteroid, **LABA** - long-acting beta-agonist, **LAMA** - long-acting muscarinic antagonist, **mMRC** - Modified Medical Research Council, **SABD** - short-acting inhaled bronchodilator

## Inhaled Corticosteroid Steroids (ICS) and Eosinophils

An ICS is typically added to a medication regimen last, due to an increased risk of pneumonia.[15]

The use of blood eosinophil counts to help guide therapy with ICS for patients with exacerbations is an emerging practice.[16] A high eosinophil count (>0.3 x 109/L) indicates a patient will likely respond well to ICS treatment, resulting in fewer acute exacerbations. In contrast, a low blood eosinophil count (<0.1 x 109/L) indicates a patient is less likely to benefit from ICS treatment.[1] Low eosinophil count is also associated with an increased risk of pneumonia for patients.[1]

If used, a blood eosinophil count should be measured prior to commencing treatment with an ICS, and when the patient is neither in an acute exacerbation nor on an oral steroid.

## Treatment of Acute Exacerbations of COPD (AECOPD)

AECOPD is characterized by (48 hours or more) of worsening dyspnea, increased coughing, and usually increased sputum volume or purulence. The most common cause is a viral or bacterial infection. Non-infectious causes include noxious particles (e.g., forest fire smoke). Differential diagnoses include pneumonia, pleural effusion, heart failure exacerbation, pulmonary embolism, and pneumothorax. **Patients who experience COPD exacerbations have a significantly higher mortality rate than those with stable COPD.**[1] This mortality risk increases with the number of exacerbations. Develop an exacerbation action plan with patients (see Associated Document: COPD Flare-Up Action Plan).

More than 80% of exacerbations can be managed on an outpatient basis with pharmacologic therapies (typically, systemic corticosteroids are indicated – see Table 1: Antibiotic Treatment Recommendations for Acute Exacerbations of COPD).[1] Severe AECOPD complicated by acute respiratory failure is a medical emergency and should be assessed in acute care.

Pharmacologic therapies for AECOPD may include:

1. **Short-acting bronchodilator** for initial treatment of acute exacerbation.
2. **Oral corticosteroids for most moderate to severe COPD patients**[1]
    - Evidence suggests that systemic corticosteroids in AECOPD shorten recovery time, improve lung function and oxygenation, and reduce the risk of early relapse, treatment failure, and duration of hospitalization.[1,17]
    - A well-powered, randomized controlled trial comparing 5 versus 14 days of oral corticosteroids showed similar efficacy.[18] 40 mg prednisone-equivalent per day for 5 days is recommended.[1] In practice, taking a single 50 mg tablet is easier for patients than taking 8X 5 mg tablets. For most patients, based on the trial above, tapering the corticosteroid dose should not be necessary.
    - **Systemic corticosteroids have not been shown to reduce AECOPD beyond the initial 30 days of an exacerbation.** Long-term use of systemic corticosteroids is not recommended as the risk of adverse events far outweighs any potential benefits.
3. **Antibiotic treatment** (see Table 1: Antibiotic Treatment Recommendations for Acute Exacerbations of COPD).

**Table 1: Antibiotic Treatment Recommendations for Acute Exacerbations of COPD**[1]

| Category | Recommended therapy | Notes |
|---|---|---|
| **< 4 exacerbations/year and at least 2 of the following:**<br>• increased sputum purulence<br>• increased sputum volume<br>• increased dyspnea | **First line agents:**<br>**amoxicillin**<br>1 g PO TID for 5 days<br>**or**<br>**doxycycline**<br>200 mg PO once, then 100 mg PO BID for 5 days<br>**or**<br>**sulfamethoxazole-trimethoprim**<br>1 DS (800-160 mg) tablet PO BID for 5 days<br>**Failure of first line agents: see below** | Antibiotics shorten recovery time, reduce the risk of early relapse, treatment failure, and hospitalization duration.<br>Antibiotic treatment for ≤ 5 days had the same clinical and bacteriological efficacy to longer conventional treatment in outpatients with COPD exacerbations. |
| **≥ 4 exacerbations/year and at least 2 of the following:**<br>• increased sputum purulence<br>• increased sputum volume<br>• increased dyspnea<br>**or**<br>**Failure of first line agents above**[1]<br>**or**<br>**Antibiotics in the past 3 months**[2] | **First line agents:**<br>**amoxicillin-clavulanate**<br>875 mg PO BID for 5 -10 days<br>**or**<br>**cefuroxime**<br>500 mg PO BID for 5 -10 days<br><br>**Alternatives:**<br>**azithromycin**<br>500 mg PO BID for 3 days<br>**or**<br>**clarithromycin**<br>500 mg PO BID **or**<br>1000 mg extended-release (XL) PO once daily for 5 -10 days<br>**or**<br>**levofloxacin**[1]<br>750 mg PO once daily for 5 days<br>**or**<br>**moxifloxacin**[2]<br>400mg PO once daily for 5 days | **1.** Failure of first line agents: no improvement in symptoms following completion of antibiotic therapy OR clinical deterioration after 72 hours of antibiotic therapy.<br>**2.** Use an antibiotic from a different class than was used in the last 3 months.<br>**3.** Macrolides have poor *Haemophilus* coverage and significant *S. pneumoniae* resistance. The benefit of macrolides may be due more to anti-inflammatory properties than to antibacterial activity.<br>**4.** Levofloxacin has good coverage of the pathogens involved. However, because of its broad spectrum, potential for increasing resistance, risk of Clostridioides difficile infection, and significant adverse effect profile, it should be reserved for amoxicillin and cefuroxime allergic patients or patients who have failed or cannot tolerate first line antibiotics.<br>**5.** Moxifloxacin does not provide pseudomonal coverage, has increased risk of Clostridioides difficile infection compared to levofloxacin, has marginal anaerobic activity which can alter oral and gastrointestinal tract flora, and has anti-tuberculosis activity possibly resulting in false negative TB cultures. |

**Footnote:** [1]Levofloxacin is not a BC PharmaCare benefit. [2]Moxifloxacin is a BC PharmaCare benefit.

During the COVID-19 pandemic, some patients used pulse oximeters (POs) to monitor the severity of their respiratory disease. While at-home PO may be one option to monitor changes to lung function, they are not always reliable, particularly those in fitness watches. Interpret at-home PO with caution.

# Environmental Impact and Climate Change

## COPD and Climate Events

Severe climate events such as extreme heat and wildfire, increase likelihood of developing COPD and increase the risk of pneumonia, acute exacerbations, emergency room visits, hospital admissions, ICU admissions requiring ventilation, and death in patients with COPD. Patients with COPD are encouraged to review information on extreme climate risks and how to manage them in Patient Handout: Climate Events and COPD Exacerbations.

## HEPA filters in patients with moderate to severe COPD

In a high-quality placebo-controlled RCT, use of HEPA and carbon filter air cleaners improved symptoms, reduced moderate exacerbations, and lowered rescue inhaler use (a well-studied marker of disease control).[19] Encourage patients with moderate to severe COPD to incorporate appropriate air filters at home.

## Environmental Considerations for Inhalers

### Dry Powder Inhalers (DPIs)

DPIs rely on the force a patient generates to inhale their medication rather than on a propellant, which makes them a more environmentally friendly option. DPIs are not recommended for patients with very poor inspiratory capacity such as those with end-stage COPD or neuromuscular weakness.

### Metered Dose Inhalers (MDIs)

MDIs rely on a propellant to distribute medication. The propellant is a liquefied, compressed gas called hydrofluoroalkane (HFA). HFAs have been identified as a gas with "a high global warming potential".[20] **One brand of salbutamol inhaler generates the same carbon emissions per inhaler as driving a car 113 km, while a different brand of the same medication, with the same coverage, generates the same carbon emissions per inhaler as driving a car 38.8km.**[21] Not all MDIs have the same quantity of HFA. The leaf icon (🍃) in Appendix B: COPD Medication Table indicates lower carbon footprint medication options. While not all patients are candidates for lower-HFA alternatives, transitioning those who do qualify has the potential to significantly impact the negative climate-inhaler cycle.

## Ongoing Management

### Follow-up Care

Modify therapeutic goals and management plans as appropriate. Use routine follow-ups to ask about and monitor the patient's key clinical indicators, including:

- Spirometry values*
- Changes in symptoms
- mMRC and/or CAT score
- Exacerbation history and review of the Flare-Up Action Plan
- Management of comorbidities
- Pharmacologic therapy adherence
- Inhaler technique
- Goals of care (Flare-Up Action Plan)

*Following major changes and/or after recovery from a severe exacerbation or hospitalization.

### Deprescribing ICS

ICS may increase the risk of pneumonia. If a patient is stable, weigh the patient's risk of pneumonia against their risk of exacerbation.[1] Consider how removal of ICS would impact exacerbation risk and financial cost for patients.

## Indications for Referral

Refer patient to a specialist in cases where:

- the diagnosis remains uncertain
- a patient is < 40 years with fixed airflow obstruction/COPD and limited smoking history
- suspected A1AT deficiency (e.g., early age of onset, unexplained liver disease, family history)
- there are severe or recurrent exacerbations (more than one per year) despite triple therapy and smoking cessation
- there are numerous comorbidities requiring more intensive assessment and management when considering additional therapies beyond combination inhalers
- a patient is frail and may benefit from comprehensive geriatric assessment

The Rapid Access to Consultative Expertise (RACE) website, app, and phone line provides access to specialists for urgent advice. Clinicians from BC can access PathwaysBC for patient education materials, clinical referral forms, and more.

RACE is available Monday to Friday from 8:00AM to 5:00PM.

Vancouver: 604-696-2131
Toll Free: 1-877-696-2131

## Controversies of Care

### Vaping

The Canadian Lung Association and the Canadian Thoracic Society have issued a collaborative position statement on vaping, asserting vaping presents risks for more nicotine dependency, and risks to lung and overall health.[22] Please refer to BCGuidelines.ca Tobacco Use Disorder.

Some individuals use e-cigarettes as cessation aids, and some studies support this approach,[23,24] although vaping has not been proven as a smoking cessation aid.[25] Primary care physicians should be very cautious supporting patients' use of e-cigarettes as a cessation aid.

### Dual vs. Triple Therapy

Dual therapy combines the use of two drugs, while triple therapy combines three drugs. Triple therapy is associated with reduced exacerbations and fewer hospitalizations for patients with moderate to severe COPD, but it is also associated with increased side effects (e.g., pneumonia).[1,26] Uncontrolled symptoms, increased CAT scores, and exacerbations are indicators a patient may benefit from triple therapy.

In BC, escalation from dual to triple therapy (in a single inhaler) is limited coverage, with criteria being that a patient has an inadequate response after a minimum 6-month trial of dual therapy before being eligible for triple therapy coverage through their primary care provider. For more information on medication coverage, see Appendix B: COPD Medication Table.

### ETHOS and IMPACT Trials and Mortality

The ETHOS (Efficacy and Safety of Triple Therapy in Obstructive Lung Disease) and IMPACT (Informing the Pathway of COPD Treatment) trials suggested that triple therapy (a combination of inhaled corticosteroid (ICS), long-acting muscarinic antagonist (LAMA) and long-acting beta agonists (LABA) given in a single inhaler) may reduce mortality compared with dual bronchodilation.[26,27] These trials are hypothesis-generating as the steadily increasing focus on outcomes such as all cause mortality reduction has gained recognition from GOLD and CTS guidelines. However, neither study was designed with all-cause mortality (ACM) as a primary end point but showed results that need to be investigated in future trials to validate the findings on mortality reduction.

## Resources

### Abbreviations:

| | |
|---|---|
| **A1AT** | alpha-1 antitrypsin |
| **AECOPD** | acute exacerbation of chronic obstructive pulmonary disorder |
| **CAT** | COPD Assessment Test |
| **COPD** | chronic obstructive pulmonary disorder |
| **DPI** | dry powder inhaler |
| **$FEV_1$** | Forced Expiratory Volume |
| **ICS** | inhaled corticosteroid |
| **LABA** | long-acting beta-agonist |
| **LAMA** | long-acting muscarinic antagonist |
| **MDI** | Metered dose inhaler |
| **mMRC** | Modified Medical Research Council |
| **SABD** | short-acting inhaled bronchodilator |
| **SAMA** | short-acting muscarinic antagonist |

### Practitioner Resources

- **UBC CPD Module on COPD**: Module on COPD Initial & Ongoing Assessment available at: elearning.ubccpd.ca/enrol/index
- **RACE Line**: Rapid Access to Consultative Expertise Program: a phone app for physicians, nurse practitioners and medical residents. raceconnect.ca/
- **PathwaysBC**: An online resource that allows GPs and nurse practitioners and their office staff to quickly access current and accurate referral information, including wait times and areas of expertise, for specialists and specialty clinics. See: https://pathwaysbc.ca/login
- **Health Data Coalition**: An online, physician-led data sharing platform that can assist you in assessing your own practice in areas such as chronic disease management or medication prescribing. See: Health Data Coalition – Better Information. Better Care. Better Patient Outcomes. (hdcbc.ca)
- **Family Practice Services Committee**: https://fpscbc.ca/

  Practice Support Program: offers focused, accredited training sessions for BC physicians to help them improve practice efficiency and support enhanced patient care.
- **Creating A Sustainable Canadian Health System In A Climate Crisis (CASCADES)**:
  - Primer - Inhalers
  - Inhaler Coverage Reference Chart
  - Patient Inhaler Disposal Poster
  - Patient-Facing Inhaler Infographic

  Above resources available at: https://cascadescanada.ca/resources/sustainable-inhaler-prescribing-in-primary-care-playbook/
- **BC Ministry of Health – Advance Care Planning**: www.gov.bc.ca/advancecare

  In addition, each health authority also has an Advance Care Planning website.

### Patient, Family and Caregiver Resources

- **Quit Smoking**: It provides one-on-one support and valuable resources in multiple languages to help you plan your strategy and connect with a Quit Coach. See: Community and Support | QuitNow. Phone: 1-877-455-2233 (toll-free) Email: quitnow@bc.lung.ca
- **Smokers' Helpline** at 1-866-366-3667 or visit Home (smokershelpline.ca)
- **HealthLink BC**: You may call HealthLinkBC at 8-1-1 toll-free in B.C., or for the deaf and the hard of hearing, call 7-1-1. You will be connected with an English-speaking health-service navigator, who can provide health and health-service information and connect you with a registered dietitian, exercise physiologist, nurse, or pharmacist. See: healthlinkbc.ca/ for several resources such as:
  - COPD: Learning to Breathe Easier
  - Quitting Smoking
  - Oxygen Therapy: Using Oxygen at Home
  - COPD: Avoiding Your Triggers
  - Breathing Problems: Using a Metered-Dose Inhaler
  - Pulmonary Rehabilitation
  - COPD: Keeping Your Diet Healthy
  - COPD: Using Exercise to Feel Better
- **Island Health Community Virtual Care:** Community Virtual Care provides support to people with a range of medical conditions. Registered nurses help you to manage your condition from the comfort of your home. All the tools needed are loaned to you at no cost.
- **BC Caregiver Support Line**: Call our toll-free BC Caregiver Support Line at 1-877-520-3267, 8:30 am – 4:00 pm PT, Monday to Friday. FCBC staff are experienced in dealing with caregiver situations. We take time to listen to you which distinguishes us from the busy health care providers you may encounter. We are then able to offer help with:
  - Information and referral to resources
  - Healthcare navigation
  - Emotional support
  - Access to support groups
  - Access to webinars, articles, and resources specific to your needs
- **Self-ManagementBC**: https://www.selfmanagementbc.ca/home

  Offers FREE health programs for adults of all ages with one or more ongoing health conditions. Programs are offered in person, virtually, online, by telephone, or by mail for adults living in BC.
- **BC Lung Foundation**: https://bclung.ca/patient-support/copd-resources
  - COPD Support
- **Creating A Sustainable Canadian Health System In A Climate Crisis (CASCADES)**:
  - Patient Resources
- **Canadian Lung Association**
  - How to use your inhaler (video): https://www.lung.ca/lung-health/how-use-your-inhaler
- **American Lung Association**
  - **Better Breathers Club**: Support groups for individuals with chronic lung disease and their caregivers. Learn better ways to cope with conditions such as COPD, pulmonary fibrosis, and asthma while getting the support of others in similar situations. Led by a trained facilitator, these online adult support groups give you the tools you need to live the best quality of life you can.

## Diagnostic Codes

- Chronic bronchitis (491)
- Emphysema (492)
- Bronchiectasis (494)
- Chronic airways obstruction-not elsewhere classified (496)

## Billing Codes

- **FFS**: PG14053 annual CDM payment billable after one year of care has been provided including at least two FFS visits as per fee notes.
- **LFP**: Patient interaction codes in addition to daily direct and indirect time with annual complexity management included in panel payments.

## Appendices

- Appendix A: COPD Severity Assessment Scales
- Appendix B: COPD Medication Table
- Appendix C: BC Home Oxygen Program Medical Eligibility

## Associated Documents

- Patient Handout: COPD and the Environment
- COPD Flare-up Action Plan
- Patient Care Flow Sheet

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This guideline is based on scientific evidence current as of the effective date.

This guideline was developed by the Guidelines and Protocols Advisory Committee in collaboration with the Provincial Laboratory Medicine Services and adopted under the *Medical Services Act* and the *Laboratory Services Act*.

## THE GUIDELINES AND PROTOCOLS ADVISORY COMMITTEE

**The principles of the Guidelines and Protocols Advisory Committee are to:**

- encourage appropriate responses to common medical situations
- recommend actions that are sufficient and efficient, neither excessive nor deficient
- permit exceptions when justified by clinical circumstances

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**Disclaimer**

The Clinical Practice Guidelines (the guidelines) have been developed by the guidelines and Protocols Advisory Committee on behalf of the Medical Services Commission. The guidelines are intended to give an understanding of a clinical problem, and outline one or more preferred approaches to the investigation and management of the problem. The guidelines are not intended as a substitute for the advice or professional judgment of a health care professional, nor are they intended to be the only approach to the management of clinical problem. **We cannot respond to patients or patient advocates requesting advice on issues related to medical conditions. If you need medical advice, please contact a health care professional.**

# Appendix A: COPD Severity Assessment Scales

The following scales can be self-administered while the patient is waiting for their appointment and can be used indirectly to guide therapy.

Administration is recommended upon diagnosis to establish baseline, and following a serious exacerbation (i.e., one requiring oral antibiotics or hospitalization).

**Table 1: mMRC Dyspnea Scale – *Adapted from the Primary Care Respiratory Society*[1]**

| Description | Grade |
|---|---|
| I only get breathless with strenuous exercise. | 0 |
| I get short of breath when hurrying on level ground or walking up a slight hill. | 1 |
| On level ground, I walk slower than people of my age because of breathlessness, or I have to stop for breath when walking at my own pace on the level. | 2 |
| I stop for breath after walking about 100 yards or after a few minutes on level ground. | 3 |
| I am too breathless to leave the house or I am breathless when dressing/undressing. | 4 |

**Interpretation of mMRC:**

mMRC ≥ 2 is used as a threshold to distinguish more symptomatic patients.
COPD patients with mMRC ≥ 2 had a higher risk of having a moderate or severe COPD exacerbation.

**Table 2: The COPD Assessment Test (CAT) – *Adapted from GSK*[2]**

| Symptom | Score | | | | | | Symptom |
|---|---|---|---|---|---|---|---|
| I never cough. | 0 | 1 | 2 | 3 | 4 | 5 | I cough all the time. |
| I have no phlegm (mucus) in my chest at all. | 0 | 1 | 2 | 3 | 4 | 5 | My chest is completely full of phlegm (mucus). |
| My chest does not feel tight at all. | 0 | 1 | 2 | 3 | 4 | 5 | My chest feels very tight. |
| When I walk up a hill or one flight of stairs, I am not breathless. | 0 | 1 | 2 | 3 | 4 | 5 | When I walk up a hill or one flight of stairs, I am very breathless. |
| I am not limited doing any activities at home. | 0 | 1 | 2 | 3 | 4 | 5 | I am very limited doing activities at home. |
| I am confident leaving my home despite my lung condition. | 0 | 1 | 2 | 3 | 4 | 5 | I am not at all confident leaving my home because of my lung condition. |
| I sleep soundly. | 0 | 1 | 2 | 3 | 4 | 5 | I don't sleep soundly because of my lung condition. |
| I have lots of energy. | 0 | 1 | 2 | 3 | 4 | 5 | I have no energy at all. |

**Interpretation of CAT:**

CAT ≥ 10 is used as a threshold to distinguish more symptomatic patients.

- < 10 = Low impact
- 10 – 20 = Medium
- 21 – 30 = High
- > 30 = Very high

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# Appendix B: COPD Medication Table

## Environmental Impact Symbol Guide

| Symbol | Environmental Impact | Per inhaler carbon footprint |
|---|---|---|
|  | Higher | > 100 km by car |
|  | Mid-range | 38.8 – 50 km by car |
|  | Lowest | 5 – 27.1 km by car |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **RELIEVER MEDICATION** | | | | | |
| **Short acting beta-agonists (SABA)** | | | | | |
| **Salbutamol**<br>*Airomir™, Ventolin®, G (pMDI)*<br>100 mcg/puff<br>200 doses<br>  <br>*Ventolin® Diskus (DPI)*<br>200 mcg/inhalation<br>60 doses<br>  | Acute relief: 1 to 2 puffs prn<br>Prevention: 1 to 2 puffs QID<br><br>Acute relief: 1 inh prn<br>Prevention: 1 inh every 4-6 hours<br>Maximum: 800 mcg/day; may be increased in action plan) | $6.50<br>$0.13 to $0.26 (1 to 2 puffs QID)<br><br>$11<br>$0.55 to $0.73 (3 to 4 inhalations/day) | Regular benefit<br><br>Non benefit | Greater than 10%:<br>Tremor (up to 38%; particularly in the hands, usually disappears as treatment continues, frequency increases with age), nervousness, pharyngitis<br>Greater than 5%: tachycardia (dose-related, more likely in susceptible patients)<br>Transient metabolic disturbances are well-known but rarely of clinical significance<br>↓ in serum potassium, phosphate<br>↑ in serum glucose | Improves symptoms; does not reduce exacerbations.<br>Use with caution in patients with cardiovascular disease (coronary artery disease, arrhythmias, hypertension); seizure disorders; hypothyroidism.<br>Paradoxical bronchospasm is unusual (~4%) and may be related to the propellant. Alternatives include dry powder inhaler or an alternative therapy, such as a SAMA, may also be considered.<br>  Low-volume HFA MDIs: Airomir™ and TEVA-Salbutamol<br>High-volume HFA MDIs: Ventolin®; APO-Salbutamol; SANIS-Salbutamol<br>  High-volume HFA MDIs: Ventolin®; APO-Salbutamol; SANIS-Salbutamol |
| **Terbutaline**<br>*Bricanyl Turbuhaler® (DPI)*<br>500 mcg/inhalation<br>120 doses<br>  | Acute relief: 1 to 2 inhalations prn<br>Maximum: 6 inhs (3000 mcg) /day may be increased in action plan) | $11<br>$0.37 to $0.55 (4 to 6 inhalations/day) | Regular benefit | | |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **Short-Acting Muscarinic Antagonist (SAMA) or Short-Acting Anticholinergic** | | | | | |
| **Ipratropium bromide**<br>*Atrovent® (pMDI)*<br>20 mcg/puff<br>200 doses | 40 mcg (2 puffs) TID to QID<br>Maximum: 240 mcg (12 puffs) daily; minimum 4 hours between doses | $22<br>$0.66 to $0.88 (2 puffs TID to QID) | Regular benefit | Greater than 10%: Bronchitis, sinusitis<br>Greater than 5%: headache, dyspnea | Improves symptoms; does not reduce exacerbations.<br>Use cautiously and monitor for worsening urinary retention in patients with pre-existing urinary tract obstruction.<br>Use cautiously in patients with narrow angle glaucoma.<br>Avoid spraying mist into eyes (ocular complications have been reported). |
| **Short-Acting Beta-Agonists/ Short-Acting Muscarinic Antagonist (SABA/SAMA)** | | | | | |
| **Ipratropium bromide / salbutamol**<br>*Combivent® Respimat*<br>20/100 mcg/inhalation<br>120 doses | 20/100mcg (1 inh) QID<br>Maximum: 6 inhs/ day | $35 | Regular benefit | Similar adverse effects as SABAs and SAMAs (see above) | Similar therapeutic considerations as SABAs and SAMAs (see above). |
| **LONG ACTING MEDICATIONS** | | | | | |
| **Long-Acting Muscarinic Antagonist (LAMA)** | | | | | |
| **Tiotropium**<br>*Spiriva® Respimat*<br>2.5mcg/inhalation<br>60 doses | 5 mcg (2 inh) once daily | $60 | Regular benefit | Greater than 10%: Dry mouth (rinse mouth after inhalation to decrease)<br>Greater than 5%: headache, pharyngitis, sinusitis, dyspepsia | Should not be used for the relief of acute symptoms.<br>When initiating treatment with a LAMA, discontinue the use of any previous regularly scheduled short acting bronchodilator(s).<br>Use SABA as a rescue medication PRN to treat acute bronchospasm.<br>No convincing evidence to support one LAMA product is superior to another, consideration should be given to usability and adherence.<br>LAMAs may have more tolerability vs LABAs (less discontinuation).<br>Use cautiously and monitor for worsening urinary retention in patients with pre-existing urinary tract obstruction (e.g., prostatic hyperplasia). |
| *Spiriva® HandiHaler®, G (cap)*<br>18 mcg/inhalation<br>Boxes of 30 capsules for inhalation | 18 mcg (1 cap) once daily by oral inhalation | $60 | Regular benefit | | |
| **Umeclidinium**<br>*Incruse™ Ellipta® (DPI)*<br>62.5 mcg/inhalation<br>7, 30 doses | 62.5 mcg (1 inh) once daily | $55 | Regular benefit | | |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **Aclidinium**<br>*Tudorza® Genuair® (DPI)*<br>400 mcg/inhalation<br>60 doses | 400 mcg (1 inh) BID | $60 | Limited coverage | | Use cautiously in patients with narrow angle glaucoma.<br>Avoid spraying mist into eyes (ocular complications have been reported) |
| **Glycopyrronium**<br>*Seebri® Breezhaler® (cap)*<br>50 mcg/inhalation Boxes of 30 capsules for inhalation | 50 mcg (1 cap) once daily by oral inhalation | $60 | Limited coverage | | |
| **Long-Acting Beta Agonists (LABA)** | | | | | |
| **Salmeterol**<br>*SereVent® Diskus (DPI)*<br>50 mcg/inhalation<br>60 doses | 50 mcg (1inh) BID | $70 | Limited coverage | Greater than 10%:<br>Headache, pain<br>Greater than 5%:<br>nasal congestion, bronchitis, throat irritation, pharyngitis, cough | LABAs are not typically used to treat acute bronchospasm.<br>When initiating treatment with LABA, discontinue the use of any regularly scheduled SABA and transition to PRN use of the SABA.<br>Use cautiously in patients with cardiovascular disorders (e.g., coronary artery disease, arrhythmias, hypertension).<br>Monitor for hyperglycemia (occurs in 1-3%) in diabetic patients when initiating therapy. |
| **Long-Acting Muscarinic Antagonist/ Long-Acting Beta Agonists (LAMA/LABA)** | | | | | |
| **Aclidinium/formoterol fumarate**<br>*Duaklir™ Genuair® DPI*<br>400/12 mcg/inhalation<br>60 doses | 400/12 mcg (1 inh) BID | $65 | Limited coverage | Similar adverse effects as LABAs and LAMAs (see above). | Do not administer a combination LAMA and LABA product concurrently with other products containing LABA or LAMA.<br>Similar therapeutic considerations as LABAs and LAMAs (see above). |
| **Indacaterol/ glycopyrronium**<br>*Ultibro® Breezhaler® caps*<br>100/50 mcg/inhalation<br>Boxes of 30 capsules for inhalation | 100/50 mcg (1 cap) once daily by oral inhalation | $85 | | | |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **Tiotropium/olodaterol**<br>*Inspiolto™ Respimat®*<br>2.5/2.5 mcg/inhalation<br>60 doses | 5 /5 mcg (2 inhs) once daily | $70 | | | |
| **Umeclidinium/vilanterol**<br>*Anoro™ Ellipta® DPI*<br>62.5/25 mcg<br>30 doses | 62.5/25 mcg (1 inh) once daily | $95 | | | |
| **Inhaled Corticosteroids/Long-acting Beta-2 Agonists (ICS/LABA)** | | | | | |
| **Budesonide/formoterol**<br>*Symbicort® Turbuhaler® (DPI)*<br>200/6 mcg/inh<br>60, 120 doses | 400/12 mcg (2 inh) BID | $95 | Non-benefit for COPD<br>(Limited Coverage for asthma) | Greater than 10%:<br>Headache, upper respiratory tract infection, nasopharyngitis<br>Greater than 5%:<br>Oral thrush (can be reduced by rinsing mouth or using spacer device with an MDI), sinusitis, pharyngolaryngeal pain, dysphonia | High dose treatment should be tapered rather than stopped abruptly.<br>ICS is associated with an increased risk of pneumonia (~2%/yr), particularly at higher doses.<br>Both LAMA/LABA and ICS/LABA reduce exacerbations compared with single bronchodilators.<br>Preference for LAMA/LABA therapy over ICS/LABA based on evidence of improved lung function and lower rates of pneumonia. However, ICS/LABA is preferred to LAMA/LABA in individuals who have concomitant asthma. |
| **Fluticasone furoate/ vilanterol**<br>*Breo® Ellipta® (DPI)*<br>100/25 mcg/inh<br>30 doses | 100/25 mcg once daily (max 1 inh/day)<br>*200/25 mcg not indicated for COPD* | $100 | Limited coverage | | |
| **Fluticasone propionate/ salmeterol**<br>*Advair® Diskus®, G (DPI)*<br>250/50,<br>500/50 mcg/inh<br>60 doses | 250/50 mcg or 500/50 mcg: 1 inhalation BID<br>*100/50 mcg DPI not indicated for COPD* | $55 - $80 | | | |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **Inhaled Corticosteroids/ Long-Acting Muscarinic Antagonists/ Long Acting Beta2 Agonists (ICS/LAMA/LABA)** | | | | | |
| **Fluticasone furoate/ umeclidinium/vilanterol**<br>*Trelegy™ Ellipta® (DPI)*<br>100/62.5/25 mcg/inh<br>30 doses | 100/62.5/ 25mcg<br>(1 inh) daily<br>*200/62.5/25mcg not indicated for COPD* | $150 | Limited coverage | Similar adverse effects as ICS/ LABAs and LAMAs (see above). | Consider for individuals at risk for AECOPD, factoring in spirometry, symptom burden, previous therapies, and mortality risk.<br>Comparing ICS/LAMA/LABA to LAMA/LABA<br>NNT=4 pts for 1 year to prevent 1 moderate to severe AECOPD with ICS/LAMA/LABA vs LAMA/LABA and NNH: 33 pts for 1 year to cause 1 pneumonia |
| **Budesonide/glycopyrronium/ formoterol**<br>*Breztri™ Aerosphere®(pMDI)*<br>182/8.2/5.8 mcg/puff<br>120 doses | 364/16.4/11.6 mcg<br>(2 puffs) BID<br>$135 | | | | |
| **Oral Therapies** | | | | | |
| **Phosphodiesterase 4 (PDE4) inhibitor** | | | | | |
| **Roflumilast**<br>*Daxas®*<br>Tablet: 500 mcg | 500mcg (1 tab) PO daily | $73/30 tabs<br>($2.43/day) | Non benefit | Greater than 10%:<br>Diarrhea<br>Greater than 5%:<br>Nausea, headache, weight loss (average of 2 kg)<br>Rare but serious: suicide and/ or suicidal ideation or behaviour, aspartate aminotransferase (AST) increase. | Contraindicated in moderate or severe hepatic impairment (Child-Pugh B or C).<br>Usually for severe COPD and initiated by specialists. |
| **Systemic Corticosteroids for AECOPD** | | | | | |
| **Prednisone**<br>*G*<br>Tablets: 1 mg, 5 mg, 50 mg | AECOPD: 30 to 50 mg PO once daily for 5 days | $1/course<br>(50 mg po daily x 5 days) | Regular benefit | Greater than 5%:<br>GI upset, hypertension, hyperglycemia, behavioural disturbances, insomnia<br>Dose related. | Increased risk of GI ulceration with concomitant NSAID.<br>Increased risk of hypokalemia with concomitant diuretic (e.g., thiazide).<br>Not used for maintenance therapy. |

| Generic Name<br>*Trade name*<br>Dose per inhalation<br>Doses per device | Usual Adult Dosage | Cost per device[A]<br>Approx. cost per usual daily dose | PharmaCare Coverage[B] | Adverse Effects | Therapeutic Considerations |
|---|---|---|---|---|---|
| **Long-term macrolide therapy to reduce AECOPD** | | | | | |
| **Azithromycin**<br>*Zithromax®, G*<br>Tablets: 250 mg<br>Oral suspension: 100 mg/5 mL, 200 mg/5 mL | To reduce risk of AECOPD: 500 mg PO three times per week | Tablets: $0.88/day (500mg 3X weekly)<br>Suspension: $4.80/day (500mg 3X weekly) | Regular benefit | Greater than 10%: Diarrhea, nausea<br>If gastrointestinal side effects occur at 500 mg 3X weekly, a dose reduction to 250 mg 3X weekly could be considered.<br>Rare but serious: Hearing loss and tinnitus (linked to cumulative doses, tinnitus can occur as early as 24 hrs but majority of hearing loss with ≥ 4wks) | Long-term macrolide therapy could be considered if > 3 exacerbations requiring steroids and ≥ 1 exacerbation requiring hospital admission per year.<br>Consider the risk of fatal cardiac arrhythmias in susceptible patients (e.g., current QT prolongation, electrolyte imbalance, concurrent treatment with QT prolonging medications, elderly).<br>Potential for antimicrobial resistance and nasopharyngeal colonization with macrolide-resistant bacteria.<br>Monitoring: LFTs and ECG at baseline and at 1 month. |

**Abbreviations: AECOPD:** acute exacerbation of chronic obstructive pulmonary disease; **BID:** twice daily; **cap:** capsule; **DPI:** dry power inhaler; **G:** generic; **GI:** gastrointestinal; **hrs:** hours; **ICS:** inhaled corticosteroids; **inh:** inhalation; **LABA:** long acting beta-2 agonist; **LAMA:** Long-Acting Muscarinic Antagonist; **mcg:** micrograms; **MDI:** metered dose inhaler; **mg:** milligrams; **mL:** millilitres; **NNH:** number needed to harm; **NNT:** number needed to treat; **NSAID:** non-steroidal anti-inflammatory; **pMDI:** pressurized metered dose inhaler; **po:** oral; **prn:** as needed; **pts:** patients; **QID:** four times per day; **SABA:** short acting beta agonist; **SAMA:** Short-Acting Muscarinic Antagonist; **tab:** tablet; **TID:** three times per day; **wks:** weeks; **yr:** year.

A Drugs costs are average retail cost of the generic, when available. Current as of Feb 2023 and does not include retail markups or pharmacy fees. Cost per month is approximate and rounded to nearest $5.

B PharmaCare coverage as of Feb 2023 (subject to revision). Regular Benefit: Eligible for full reimbursement*. Limited Coverage: Requires Special Authority to be eligible for reimbursement*. Non-benefit: Not eligible for reimbursement. *Reimbursement is subject to the rules of a patient's PharmaCare plan, including any deductibles. In all cases, coverage is subject to drug price limits set by PharmaCare. See: www.health.gov.bc.ca/pharmacare/plans/index.html and www.health.gov.bc.ca/pharmacare/policy.html for further information. * Special Authority drug list

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Note: Information on which products PharmaCare covers can be obtained using the B.C. PharmaCare Formulary Search (https://pharmacareformularysearch.gov.bc.ca/)

= Higher environmental impact option (per inhaler carbon footprint of > 100 km by car)

= Mid-range environmental impact option (per inhaler carbon footprint of 38.8 - 50 km by car)

= Lowest environmental impact option (per inhaler carbon footprint of 5 – 27.1 km by car)

For more information on the environmental impact of specific medications, please see the Inhaler Coverage and Environmental Impact Guide

# Appendix C: BC Home Oxygen Program Medical Eligibility

Medical eligibility criteria may vary between health authorities. Refer to health authorities for more details on local criteria and application forms. All Home Oxygen Program applicants are expected to seek and be compliant with optimal medical or adjunctive treatment and not be actively smoking prior to use of oxygen therapy.

| | CRITERIA | NOTES |
|---|---|---|
| **1. RESTING OXYGEN** | $PaO_2 \leq 55$mmHg on room air<br>**OR**<br>SpO2 < 88% sustained continuously for 6 minutes[1]<br>**OR**<br>$PaO_2 \leq 60$ mmHg<br>**AND**<br>Evidence[2] of one of the following co-morbid diseases:<br>**i.** Heart failure<br>**ii.** Pulmonary hypertension[3] | Client must be breathing room air and seated at rest for at least 10 minutes **prior** to taking an arterial blood gas sample or beginning to monitor oximetry. |
| **2. AMBULATORY OXYGEN** | **Short-term ambulatory oxygen therapy criteria**[4]<br>$SpO_2$ < 88% sustained continuously for one minute during the patient's usual type of ambulation on a level surface.<br>**Long-Term ambulatory oxygen therapy criteria**<br>(outpatient portable oxygen applications):<br>$SpO_2$ < 88% sustained continuously for a minimum of one minute while breathing room air and a measured improvement within a 6-minute walk test as tolerated on oxygen compared to room air showing 1) the distance traveled increases by at least 25% AND 2) at least 30 meters (100 feet).<br>**OR**<br>$SpO_2$ < 80% with ambulation for a minimum of one minute. | If the client is unable to walk one minute or more, ambulatory oxygen will not be useful and will not be funded.<br>Ambulatory testing is to be performed on a flat surface only; no exercise equipment (e.g., treadmills) is permitted.<br>Clients should be tested with their usual mobility devices (e.g., walkers, canes, etc.) |
| **3. NOCTURNAL OXYGEN** | **$SpO_2$ must be < 88% for > 30% of a minimum 4-hour nocturnal oximetry study while breathing room air.**<br>In the absence of co-morbidities (heart failure, pulmonary hypertension),[3] daytime desaturation must be present at rest or with ambulation according to sections 1 or 2 for nocturnal oxygen therapy to be funded. | Sleep disordered breathing (i.e., sleep apnea) will only be treated with supplemental oxygen if the nocturnal criteria are met despite optimal CPAP treatment. |
| **4. PALLIATIVE** | Palliative clients must have hypoxemia according to sections 1, 2, or 3 above to be funded. | |

**Notes**

1. Island Health and Vancouver Coastal Health indicate that this criterion is only accepted in exceptional circumstances.
2. Information to support the co-morbid diseases is required (e.g., consultation note, discharge summary, spirometry, etc.).
3. Vancouver Coastal Health also accepts evidence of polycythemia or cor pulmonale.
4. Northern Health does not have specific short-term ambulatory oxygen therapy criteria.

# Patient Handout: Climate Events and COPD Exacerbations

| Climate events | Risks | What I can do |
|---|---|---|
|  **Wildfire** | People with COPD need to be careful when there's wildfire smoke or when the air quality suddenly gets worse. Here's why:<br>• It makes them more likely to get pneumonia, which is a lung infection.<br>• It can cause their COPD to suddenly get much worse, leading to more breathing problems (COPD exacerbation).<br>• They might have to go to the emergency room more often.<br>• They might have to stay in the hospital.<br>• In some cases, it can even be life-threatening. | To stay safe during bad air quality days, I can:<br>• Sign up for the BC Air Quality Index to get alerts on my phone or email when the air is going to get worse.<br>• Stay indoors and use air conditioning if I have it.<br>• Keep the windows in my home and car closed.<br>• Make sure the fireplace damper is closed.<br>• Use portable air filters with HEPA or carbon filters to reduce my risk of breathing problems.<br>• Plan ahead by having my action plan and rescue medications ready. I should also pack extra inhalers and medications if I live in an area with wildfires." |
|  **Extreme Heat** | When there are really hot days ("heat waves"), people with COPD have a higher risk of dying. If there's a heat wave along with bad air quality, it makes the risk of dying even higher. | |

### Air Quality and Wildfire Resources

- **Gov.bc.ca:**
  - Current Wildfire Activity
  - Air Quality Health Index
  - Air Quality Subscription Service
  - Wildfire Smoke: Frequently Asked Questions (gov.bc.ca)
- **BC CDC:**
  - Wildfire Smoke Response Planning (bccdc.ca)
- **Videos:**
  - BCCDC: What kind of mask protects you from smoke?
  - BCCDC: Protect your health from wildfire smoke

# COPD Flare-Up Action Plan

BRITISH COLUMBIA Ministry of Health

This Action Plan is based on the guideline: *Chronic Obstructive Pulmonary Disease (COPD): Diagnosis and Management in Primary Care* at www.BCGuidelines.ca

doctors of bc

FLARE-UP ACTION PLAN FOR: _____ Date: _____

Doctor's name: _____ Doctor's phone#: _____

## Green Zone: My COPD is well controlled

- My breathing problems have not changed (shortness of breath, cough, and sputum).
- My appetite is normal.
- I am able to exercise and do my daily activities as normal.
- I have no trouble sleeping.

### What should I do?

**☑ Continue to take my medications as prescribed:**

| Medication | Dose | Puffs/Pills | Frequency |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**Watch for a COPD flare-up when:**

- I get a cold or flu.
- I feel run down or tired.
- I am exposed to smoke or air pollution.
- After weathe changes.
- When my mood changes, such as feeling stressed or anxious.

## Yellow Zone: My symptoms are worse | Take action – FLARE-UP

**If you experience one or more of these symptoms, this may be the start of a COPD flare-up.**

- I am more short of breath than usual.
- I am coughing or wheezing more than usual.
- I have more sputum or mucus than usual.
- I have green, yellow or rust coloured sputum.

### What should I do? – Your doctor will check all that apply:

**☑ Take additional treatment prescribed by my doctor depending on my symptoms:**

☐ **I increase my reliver (BRONCHODILATOR) if I am MORE SHORT OF BREATH than usual.**

| Bronchodilator | Dose | # of Puffs | Frequency |
|---|---|---|---|
| | | | |
| | | | |

■ **I start PREDNISONE if after increasing my bronchodilator my SHORTNESS OF BREATH DOES NOT IMPROVE and my symptoms have been worse FOR AT LEAST ____ HOURS.**

| Prednisone | Dose | # of Pills | Frequency |
|---|---|---|---|
| | | | |

☐ **Plan your day, get rest, relax, use breathing techniques, huff and cough to clear phlegm as required.**

☐ **Other:** _____

☐ **I start ANTIBIOTICS if my SPUTUM becomes green, yellow or rust coloured or has blood in it and my symptoms have been worse FOR AT LEAST ____ HOURS.**

| Antibiotic | Dose | # of Pills | Frequency |
|---|---|---|---|
| | | | |

**If after taking the above action, your symptoms don't improve with 48 hours, SEEK MEDICAL CARE IMMEDIATELY!**

## Red Zone: DANGER | Take action – get help!

- I am **extremely** short of breath.
- I am confused, agitated, or drowsy.
- I have sudden chest pain.

**What should I do? ☑ Call 9-1-1 for an ambulance to take you to the emergency room.**

**Continued on next page** ➡

### Why should I have a flare-up action plan?

This action plan will tell you what to do when you have a COPD flare-up. This will help you and your doctor quickly recognize and treat flare-ups so you cn return to a stable state as soon as possible

### How do I know when I'm having a flare-up?

A flare-up may happen when you get a cold or flu, get run down or tired, or are exposed to air pollution or weathe changes. There are three main symptoms that define a flare-up:

- You are much more short of breath than normal.
- You are coughing more and/or you have more sputum than normal.
- Your sputum changes from its normal colour to yellow, green, or rust colour.

**If you have one or more of these symptoms, this may be the start of a COPD flare-up.**

### What should I do when I have a COPD flare-up?

1. Start your action plan as instructed by your doctor. **Make sure you understand when to start additional treatment and when to seek urgent medical attention.**
2. Your doctor will explain the specific circumstances (e.g. your syptoms are worse for at least 48 hours) before you should start prednisone or antibiotics. These circumstances may vary between patients.
3. If you don not feel better after 48 hours of taking action, or if you are getting worse at any time, get medical attention right away.
4. Book an appointment to see your doctor to make sure you are on the correct treatment pathway and your symptoms are improving. You may need to get refills of your flare-up medications.

### THIS ACTION PLAN IS FOR COPD FLARE-UPS ONLY

There are other reason your symptoms may worsen such as heart problems, pneumonia, or blood clots in the lungs. **It is important to watch out for other problems such as:**

- *Abnormal shortness of breath*
- *Abnormal chest pain*
- *Coughing up blood*
- *Unusual swelling in legs, ankles, or feet*
- *Abdominal bloating*
- *Extreme fatique or drowsiness*
- *Persistent morning headaches*
- *Confusion or decreased level of consciousness*
- *Heart palpitations, being light-headed or dizzy, or fainting*

If you experienc any of the above symptoms, **see your doctor right away or go to the emergency room**.

### My COPD Flare-Up Record

After a COPD flare-up, it is important to keep track of which medications you took. For example, if you took an antibiotic, a different antibiotic may need to be prescribed for your next flare-up. Keep track of the date of your flare-ups, whether you took prednisone, what antibiotic (if any) you took, and if you had to go to the hospital.

**Bring this information with you to your doctor appointments.**

| **Date of Flare-Up:** | | | | | |
|---|---|---|---|---|---|
| Did you take prednisone? | | | | | |
| Did you take antibiotics? If so, which one? | | | | | |
| Did you have to go to the hospital? | | | | | |

Call **HealthLinkBC** at **8-1-1** toll-free in B.C., or for the deaf and the hard of hearing, call 7-1-1. You will be connected with an English-speaking health-service navigator, who can provide health and health-service information and connect you with a registered dietitian, exercise physiologist, nurse, or pharmacist.

**www.HealthLinkBC.ca**